



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,867	02/18/2002	Romain L. Billiet		4962

7590 06/29/2005

Romain L. Billiet and Hanh Thi Nguyen
135A Malacca Street
10400 Penang,
MALAYSIA

EXAMINER

LOPEZ, CARLOS N

ART UNIT	PAPER NUMBER
----------	--------------

1731

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,867

Applicant(s)

BILLIET ET AL

Examiner

Carlos Lopez

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/22/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-7 and 10-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claimed range of a borehole with a diameter of about 10 micrometers or less encompass diameters that are less than the size of one atom; a borehole diameter not enabled by the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "micron-sized" or "nanometer-sized" in claim 4 is a relative term which renders the claim indefinite. The terms "micron-sized" or "nanometer-sized" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In fact any particle can be expresses in any scale desired, thus noting that its micron-sized does not provide an exact magnitude.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiber et al (US 6,354,479) in view of Perlberg et al (US 5,421,503). Reiber discloses a method for producing ceramic bonding tools. The method comprises of forming a mixture of fine sinterable material and one degradable organic thermoplastic material, deemed as the disclosed binder, organic solvents, dispersants and sintering aids (see Reiber Col. 5, lines 5-25). While Reiber is silent of "accurately determined value" of sinterable and thermoplastic material, it is obvious to a person of ordinary skill in the art that the amounts of material are predetermined in order to obtain the desired composition that can be formed into a bonding tool. The claimed step c is deemed as molding the mixture into wedges and drying the wedges to extract the binders and dispersants before finally sintering the wedges into dense products, which are wire bonding capillaries as shown in figures 1-3. The disclosed step of Reiber of sintering is deemed as comprising part of claimed step (d). It is also noted that sintering of the oversized wedges into a dense end product reduces the diameter of the borehole.

While Reibert is silent disclosing the size of the borehole formed in the ceramic bonding tool, Perlberg notes that the diameter of the borehole is depended on the size of the wire running through the bonding tool, see col.3, lines 23-31. Hence, at the time

Art Unit: 1731

the invention was made, it would have been obvious to a person of ordinary skill in the art to have provided Reibert's borehole with a diameter of 10 micrometers or less in order to accommodate a wire running through the borehole of the bonding tool as taught by Perlberg.

Thus in providing a borehole of diameter of 10 micrometers or less, applicant is merely specifying the type of wire that the bonding tool can accommodate.

As for claim 3, the sinterable material are ceramics and metals as shown in Col. 6 of Reibert.

As for claim 4, Reibert notes that the sinterable material is in fine powder, the diameters of the fine powders can be expressed using a nano scale, micron scale, and in fact a kilometer scale.

As for claim 5, organic solvents encompasses the claimed waxes, greases and oils.

As for claims 13-18, the extraction of the thermoplastic material and sintering of the sinterable material would densify the molded green oversized bonding wedges into dense wire bonding tools.

As for claim 20, the sintering of the wedge would cause it to densify and reduce its borehole diameter, thus the final dimensions would be obtained during sintering as claimed.

Response to Arguments

Applicant's arguments with respect to claims 1-7 and 10-20 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 1731

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References A-D have been cited to show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CL


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700